BIOCHEMICAL AND BIOPHYSICAL Research Communications

EDITORS

Ernesto Carafoli
Pedro Cuatrecasas
I. C. Gunsalus
Osamu Hayaishi
B. L. Horecker
William J. Lennarz
M. Daniel Lane
William D. McElroy
Frederick C. Neidhardt
Claude Paoletti
William D. Phillips
Alberto Sols

Volume 147 • 1987

ACADEMIC PRESS, INC.

Harcourt Brace Jovanovich, Publishers

San Diego New York Boston
London Sydney Tokyo Toronto

Copyright © 1987 by Academic Press, Inc.

ALL RIGHTS RESERVED

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (27 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1987 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0006-291X/87 $1.50

MADE IN THE UNITED STATES OF AMERICA

BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS

CONTENTS

Volume 147, Number 1, August 31, 1987

AUTHOR INDEX, Volume 147, Number 1, August 31, 1987 iii

Selective Elevation of c-*myc* Transcript Levels in the Liver of the Aging Fischer-344 Rat
Martha F. Matocha, James W. Cosgrove, John R. Atack, and Stanley I. Rapoport 1

Regulatory Functions of Cyclic Adenosine 3′,5′-Monophosphate in 1-Methyladenine Production by Starfish Follicle Cells *M. Mita, N. Ueta, and Y. Nagahama* 8

The Binding of Ca^{2+} to Ca^{2+}-Transporting Microsomes Derived from Bovine Uterine Sarcoplasmic Reticulum *Jordan D. Miller and Mary E. Carsten* 13

1-*O*-Alkyl-2-*N*-methylcarbamylglycerophosphocholine: A Biologically Potent, Nonmetabolizable Analog of Platelet-Activating Factor *Joseph T. O'Flaherty, J. F. Redman, Jr., Jeffrey D. Schmitt, J. Marshall Ellis, Jefferson R. Surles, Michael H. Marx, Claude Piantadosi, and Robert L. Wykle* 18

Interference of Retinoic Acid Binding to Its Binding Protein by Omega-6 Fatty Acids
Brahma P. Sani, Roger D. Allen, Candace M. Moorer, and Barrett W. McGee 25

Oxygen Bonding in Human Hemoglobin and Its Isolated Subunits: A XANES Study
A. Congiu-Castellano, A. Bianconi, M. Dell'Ariccia, S. Della Longa, A. Giovannelli, E. Burattini, and M. Castagnola 31

Interleukin-1 Derived from Human Monocytic Leukemia Cell Line JOSK-I Acts as an Autocrine Growth Factor *Yusuke Furukawa, Masatsugu Ohta, Yasusada Miura, and Masaki Saito* 39

Two Domains in α Interferons Influence the Efficacy of the Antiviral Response
Ellen C. Zwarthoff, Annemiek Gennissen, I. Jaap Bosveld, Jan Trapman, and Margreet van Heuvel 47

Increased Membrane-Associated Phorbol-12,13 Dibutyrate (PDBu) Receptor Function in Sickle Red Cells *M. Ramachandran, C. N. Nair, and E. C. Abraham* 56

A Rapid Affinity Method for Isolation and Characterization of Sequence Specific DNA Binding Factor *R. P. Singh and V. Natarajan* 65

Porcine Polymorphonuclear Leukocyte NADPH–Cytochrome *c* Reductase Generates Superoxide in the Presence of Cytochrome b_{559} and Phospholipid
Fumio Sakane, Hiroyuki Kojima, Kazuhiko Takahashi, and Jiro Koyama 71

Stimulation of DNA Synthesis in Primary Cultures of Adult Rat Hepatocytes by Sodium Butyrate *Jeffrey L. Staecker, Norimasa Sawada, and Henry C. Pitot* 78

Stimulation of Prostaglandin E_2 and Thromboxane B_2 Production by Human Monocytes in Response to Interleukin-2 *D. G. Remick, J. W. Larrick, D. T. Nguyen, and S. L. Kunkel* 86

4-Aminopyridine Inhibits Synaptosomal Plasma Membrane Protein Phosphorylation *in Vitro*: Effect of the Selective NMDA-Antagonist 2-Amino-5-phosphonovalerate
F. M. J. Heemskerk, L. H. Schrama, P. N. E. de Graan, and W. H. Gispen 94

Comparison of Insulin and Insulin-like Growth Factor I Receptors from Rat Skeletal Muscle and L-6 Myocytes *Charles F. Burant, Mary K. Treutelaar, Katherine D. Allen, Donald A. Sens, and Maria G. Buse* 100

Highly Frequent Detection of Transforming Genes in Acute Leukemias by Transfection Using *in Vivo* Selection Assays *Hisamaru Hirai, Junji Nishida, and Fumimaro Takaku* 108

Phosphorylation Heterogeneity of Tryptic Phosphopeptides of Chicken Riboflavin-Binding Protein *Valerie L. Vaughn, Rong Wang, Catherine Fenselau, and Harold B. White III* 115

Quantitation of Intracellular Free Calcium in Single Adult Cardiomyocytes by Fura-2 Fluorescence Microscopy: Calibration of Fura-2 Ratios
Qian Li, Ruth A. Altschuld, and Bradford T. Stokes 120

Modified Ganglioside as a Possible Modulator of Transmembrane Signaling Mechanism through Growth Factor Receptors: A Preliminary Note *Nobuo Hanai, Gustavo Nores, Carmen-Rosa Torres-Mendez, and Sen-itiroh Hakomori* 127

Identification of an Atrial Natriuretic Peptide Specific Receptor in Human Kidney
Yoshihiro Ishikawa, Satoshi Umemura, Gen Yasuda, Kazuo Uchino, Tadashi Shindou, Kosuke Minamizawa, Yoshiyuki Toya, and Yoshihiro Kaneko 135

Mechanisms for the Stimulatory and Inhibitory Effects of Carbamoylcholine on Canine Gastric D-Cells
Tsutomu Chiba and Tadataka Yamada 140

Ethanol Inhibits Dual Receptor Stimulation of Pineal cAMP and cGMP by Vasoactive Intestinal Peptide and Phenylephrine
Constance L. Chik, Anthony K. Ho, and David C. Klein 145

Effects of Chronic Allopurinol Therapy on Purine Metabolism in Duchenne Muscular Dystrophy
M. Castro-Gago, S. Lojo, I. Novo, R. del Rio, J. Peña, and S. Rodríguez-Segade 152

Effects of Gluconeogenic Hormones on Insulin Binding in Intact Human Red Blood Cells
Lebogang Mokoena, Mariane Alberts, and Errol Tyobeka 158

Synthetic Segments of the Mammalian βAR Are Preferentially Recognized by cAMP-Dependent Protein Kinase and Protein Kinase C
Allan D. Blake, Richard A. Mumford, H. Vincent Strout, Eve E. Slater, and Catherine D. Strader 168

α-Lactalbumin Acts as a Bimodal Regulator of Rat Parotid Acinar Cell Growth
Michael G. Humphreys-Beher, Charlotte A. Schneyer, and Tivadar Zelles 174

Calcium Mobilization by Muscarinic Receptors in Human Astrocytoma Cells: Measurements with Quin 2
L. Noronha-Blob, C. Richard, and D. C. U'Prichard 182

Bombesin-like Peptides Elevate Cytosolic Calcium in Small Cell Lung Cancer Cells
Terry W. Moody, Anne Murphy, Samira Mahmoud, and Gary Fiskum 189

Characterization and Cloning of Androgen-Repressed mRNAs from Rat Ventral Prostate
Jocelyne G. Léger, Michael L. Montpetit, and Martin P. Tenniswood 196

Synthetic C-Terminal Peptide of IL-1 Functions as a Binding Domain as well as an Antagonist for the IL-1 Receptor
Edmund W. Palaszynski 204

Carcinoembryonic Antigen (CEA) and Two Crossreacting Antigens of 165 and 105 kDa Isolated from Meconium Exhibit Identical Amino Terminal Sequences
Dietrich Siepen, Raymond J. Paxton, Michael Neumaier, John E. Shively, and Christoph Wagener 212

The Induction of Ornithine Decarboxylase by the Tumor Promoter TPA Is Controlled at the Post-transcriptional Level in Murine Swiss 3T3 Fibroblasts
Stefan Rose-John, Gabriele Rincke, and Friedrich Marks 219

Ontogenically Regulated Expression of Metallothionein and Its Messenger RNA in Chick Liver
Tushar Chakraborty and B. B. Biswas 226

A Malonyl-CoA-Binding Protein from Liver
Richard E. Dugan, Bengt R. Osterlund, Roger F. Drong, and Theresa L. Swenson 234

Ovarian Epidermal Growth Factor-like Activity: Concentrations in Porcine Follicular Fluid during Follicular Enlargement
Ching-Ju Hsu, Stephen D. Holmes, and James M. Hammond 242

Substrate-Specific Stimulation of Protein Kinase C by Polyvalent Anions
Mohammad D. Bazzi and Gary L. Nelsestuen 248

In Vitro Methane and Methyl Coenzyme M Formation from Acetate: Evidence That Acetyl-CoA Is the Required Intermediate Activated Form of Acetate
David A. Grahame and Thressa C. Stadtman 254

Peroxide(s) of Vanadium: A Novel and Potent Insulin-Mimetic Agent Which Activates the Insulin Receptor Kinase
Satoru Kadota, I. George Fantus, Guy Deragon, Harvey J. Guyda, Bonnie Hersh, and Barry I. Posner 259

Apparent Cathepsin B Deficiency in Neuronal Ceroid Lipofuscinosis Can Be Explained by Peroxide Inhibition
Glyn Dawson and Paul Glaser 267

High Production of Type VI Collagen in Multiple Fibromatosis with Multiple Articular Dysplasia
Katsumi Murata, Tamaki Motoyama, Masahiro Suka, Mikio Ohno, and Yoshinori Kuboki 275

Conversion of Leukotriene C_4 to Leukotriene D_4 by a Cell-Surface Enzyme of Rat Macrophages
Isao Nagaoka and Tatsuhisa Yamashita 282

Antisense RNA to the c-*fos* Gene: Restoration of Density-Dependent Growth Arrest in a Transformed Cell Line
Dan Mercola, Ann Rundell, John Westwick, and Steven A. Edwards 288

The Purification and Subunit Structure of a Membrane-Bound ATPase from the Archaebacterium *Halobacterium saccharovorum*
Lawrence I. Hochstein, Hordur Kristjansson, and Wijaya Altekar 295

Binding of Non-histone Chromosomal Protein HMG1 to Histone H3 in Nucleosomes Detected by Photochemical CrossLinking *Michal Štros* 301
The Actions of Arginine and Glucose on Glucagon Secretion Are Mediated by Opposite Effects on Cytoplasmic Ca^{2+} *Hans Johansson, Erik Gylfe, and Bo Hellman* 309
Purification and Characterization of Recombinant Human Interleukin-1β Produced in *Escherichia coli* *Yoshikazu Kikumoto, Yeong-Man Hong, Tsutomu Nishida, Satoru Nakai, Yoshihiro Masui, and Yoshikatsu Hirai* 315
Specific Inhibitors of Tyrosine-Specific Protein Kinase, Synthetic 4-Hydroxycinnamamide Derivatives *Tadayoshi Shiraishi, Takeshi Domoto, Naohiro Imai, Yoshio Shimada, and Kiyoshi Watanabe* 322
Investigation of Conformational Changes in Yeast Enolase Using Dynamic Fluorescence and Steady-State Quenching Measurements *John M. Brewer, Phillippe Bastiaens, and John Lee* 329
Subset Characteristics of DNA Sequences Involved in Tight DNA/Polypeptide Complexes and Their Homology to Nuclear Matrix DNA *Beatrice Neuer-Nitsche and Dieter Werner* 335
Radiolabeling of DNA/Polypeptide Complexes in Isolated Bulk DNA and in Residual Nuclear Matrix DNA by Nick-Translation *Dieter Werner and Roland Rest* 340
Establishment of a New Short, Protease-Resistant, Affinity Labeling Reagent for the Cholecystokinin Receptor *Randall K. Pearson, Stephen P. Powers, Elizabeth M. Hadac, Herbert Gaisano, and Laurence J. Miller* 346
Evidence for the One-Electron Oxidation of 1-Methyl-4-phenyl-2,3-dihydropyridinium ($MPDP^+$) *W. Korytowski, C. C. Felix, and B. Kalyanaraman* 354
Oscillatory Motion in Human Neutrophils Responding to Chemotactic Stimuli *Matthias P. Wymann, Peter Kernen, David A. Deranleau, Beatrice Dewald, Vinzenz von Tscharner, and Marco Baggiolini* 361
Immunochemical Probing of the N-Terminus of the Myosin Heavy Chain *Theresa Chen, Jane Liu, and Emil Reisler* 369
Inhibition of Sodium-Dependent Transport Systems in Rat Renal Brush-Border Membranes with *N,N'*-Dicyclohexylcarbodiimide *Thomas Friedrich, Jutta Sablotni, and Gerhard Burckhardt* 375
A Single Form of Protein Kinase C Is Expressed in Bovine Adrenocortical Tissue, as Compared to Four Chromatographically Resolved Isozymes in Rat Brain *Jean-Marc Pelosin, Isabelle Vilgrain, and Edmond M. Chambaz* 382
The Action of Erythropoietin Is Mediated by Lipoxygenase Metabolities in Murine Fetal Liver Cells *B. S. Beckman, M. Mason-Garcia, L. Nystuen, L. King, and J. W. Fisher* 392
The Insulin–Receptor Interaction: Is the Kinetic Approach for Inferring Negative–Cooperative Site–Site Interactions Valid? *E. Helmerhorst* 399
Binding Proteins for Insulin-like Growth Factors in Adult Rat Serum: Comparison with Other Human and Rat Binding Proteins *Robert C. Baxter and Janet L. Martin* 408
The Action of Neutrophil Elastase on Intact and Oxidized (Met)–Enkephalin–Arg^6–Gly^7–Leu^8 Peptide *Wieslaw Watorek and James Travis* 416
Binding Constants of Soluble NGF-Receptors in Rat Oligodendrocytes and Astrocytes in Culture *Dario Marchetti, Robert W. Stach, Russell Saneto, Jean de Vellis, and J. Regino Perez-Polo* 422
Inhibition of Protein Kinase C from Polymorphonuclear Neutrophils by Long Chain Acyl Coenzyme A and Counteraction by Mg-ATP *Marie-José Stasia, Anne-Christine Dianoux, and Pierre V. Vignais* 428
Nuclear Transition Protein 2 (TP2) of Mammalian Spermatids Has a Very Basic Carboxyl Terminal Domain *Kenneth D. Cole and W. Stephen Kistler* 437
Reconstitution of the G_s Protein from B16 Melanoma Clones of High and Low Experimental Metastatic Potential into S49 CYC- Membranes *Bruce R. Lester, Jeffrey M. Stadel, Charles Buscarino, John Sheppard, Russell G. Greig, and George Poste* 443
Purification of Decidual Prolactin-Releasing Factor, a Placental Protein That Stimulates Prolactin Release from Human Decidual Tissue *Stuart Handwerger, Darrell Capel, Gil Korner, and Randall Richards* 452
Erythrocyte Membrane Heterogeneity Studied Using 1,6-Diphenyl-1,3,5-hexatriene Fluorescence Lifetime Distribution *R. M. Fiorini, M. Valentino, E. Gratton, E. Bertoli, and G. Curatola* 460

Evidence That Post-transcriptional Changes in the Expression of Mitogen Regulated Protein Accompany Immortalization of Mouse Cells
Dylan R. Edwards, Craig L. J. Parfett, Jim H. Smith, and David T. Denhardt 467
The Soluble Metalloendoprotease Required in Myoblast Fusion Remains Intracellular
Horacio A. Farach, Jr., and Warren J. Strittmatter 474
C-Terminal Proteolysis of the Avian 1,25-Dihydroxyvitamin D_3 Receptor
Elizabeth A. Allegretto, J. Wesley Pike, and Mark R. Haussler 479
Induction of Prolyl Hydroxylase Activity in a Nonadherent Population of Human Leukocytes *William J. Lindblad, James A. French II, Kaye S. Redford, Susan K. Buenaventura, and I. Kelman Cohen* 486
Increased Messenger RNA Concentration for Carbamoyl-Phosphate Synthase II in Hepatoma 3924A *Melissa A. Reardon, Jack E. Dixon, and George Weber* 494
Cyclic AMP-Induced Expression of the Mouse Lactate Dehydrogenase-A Promoter CAT Fusion Gene in Chinese Hamster Ovary Wild-Type Cells, but not in cAMP-Dependent Protein Kinase Mutant Cells *Esther W. Hou and Steven S.-L. Li* 501
Infrared Spectroscopic Evidence for a Conformational Alteration of Plant Plasma Membranes upon Exposure to the Growth Hormone Analog, 2,4-Dichlorophenoxyacetic Acid *D. James Morré, John H. Crowe, Dorothy M. Morré, and Lois M. Crowe* 506
Rat Transformation-Associated Proteins (TAP) Induced by Moloney Murine Sarcoma Virus Interact with Specific Receptors on Normal Rat Kidney Cells
Wanjun Li, Peter Steck, James M. Bowen, and James C. Chan 513

Volume 147, Number 2, September 15, 1987

AUTHOR INDEX, Volume 147, Number 2, September 15, 1987 ii
Fluoride Effects on ^{31}P NMR Spectra of Macrophages *Claire Ducrocq, Maryse Lenfant, Georges H. Werner, Brigitte Gillet, and Jean-Claude Beloeil* 519
Isolation and Characterization of the α and β Chains of Human Platelet Glycoprotein Ib
Vikki A. Canfield, Juris Ozols, Diane Nugent, and Gerald J. Roth 526
Analysis by Flow Cytometry of Rat Hepatocytes from Different Acinar Zones
Jose Luis Vargas, Enrique O'Connor, Enrique Roche, Erwin Knecht, and Santiago Grisolia 535
Cyclosporin A Inhibits PGE_2 Release from Vascular Smooth Muscle Cells
Armin Kurtz, Josef Pfeilschifter, Karlwilhelm Kühn, and Karl-Martin Koch 542
Insulin Stimulates Secretion of a Collagenase Inhibitor by Swarm Rat Chondrosarcoma Chondrocytes *Judith Harper and Elvin Harper* 550
In Vitro Assay of Squalene Epoxidase of *Saccharomyces cerevisiae*
Bonaventure M'Baya and Francis Karst 556
Pyridoxal 5′Phosphate Binding Site of *Escherichia coli* β Cystathionase and Cystathionine γ Synthase: Comparison of Their Sequences *A. Martel, C. Bouthier de la Tour, and F. Le Goffic* 565
Protective Effect of Endogenous Coenzyme Q on Both Lipid Peroxidation and Respiratory Chain Inactivation Induced by an Adriamycin–Iron Complex *G. Solaini, L. Landi, P. Pasquali, and C.A. Rossi* 572
Cloning and Sequence Analysis of a cDNA Encoding Polyubiquitin in Human Ovarian Granulosa Cells *R. Einspanier, H. S. Sharma, and K. H. Scheit* 581
On the Relationship between Nucleotide Hydrolysis and Microtubule Assembly: Studies with a GTP-Regenerating System *Maria J. Schilstra, Stephen R. Martin, and Peter M. Bayley* 588
A Viral K-*ras* Protein Increases the Stimulability of Adenylate Cyclase by Cholera Toxin in NRK Cells *Douglas J. Franks, James F. Whitfield, and Jon P. Durkin* 596
Crosslinked Polymers in the Red Cell Membranes of a Patient with Hb-Koln Disease
L. Lorand, M. Michalska, S. N. P. Murthy, S. B. Shohet, and J. Wilson 602
Factor XIII Binds to the Aα- and Bβ-Chains in the D-Domain of Fibrinogen: An Immunoblotting Study *Ann Mary, Komandoor E. Achyuthan, and Charles S. Greenberg* 608

Identification of A Chain Cleavage Sites in Intact Insulin Produced by Insulin Protease and Isolated Hepatocytes *William C. Duckworth, Frederick G. Hamel, Juris J. Liepnieks, Daniel E. Peavy, Michael P. Ryan, Mark A. Hermodson, and Bruce H. Frank* 615

Modulation of Human Neutrophil LTA Hydrolase Activity by Phorbol Myristate Acetate *Shaun R. McColl, Nigel P. Hurst, W. Henry Betts, and Leslie G. Cleland* 622

A Hemodynamic Load *in Vivo* Induces Cardiac Expression of the Cellular Oncogene, c-*myc* *Sharon L. Mulvagh, Lloyd H. Michael, M. Benjamin Perryman, Robert Roberts, and Michael D. Schneider* 627

cDNA Cloning and Characterizations of Vinculin mRNA *M. D. Coutu, D. J. Simon, A. E. Brown, and S. W. Craig* 637

A Novel Enzyme Immunoassay of Anti-insulin IgG in Guinea Pig Serum *Takeyuki Kohno and Eiji Ishikawa* 644

Alternative Splicing Model for the Synthesis and Secretion of the 20 Kilodalton Form of Rat Growth Hormone *David S. Howland, Marianne A. Farrington, William D. Taylor, and W. C. Hymer* 650

External GSSG Enhances Intracellular Glutathione Level in Isolated Cardiac Myocytes *C. Guarnieri, A. Fraticelli, C. Ventura, I. Vaona, and R. Budini* 658

SC-39026, a Specific Human Neutrophil Elastase Inhibitor *Akira Nakao, Richard A. Partis, Geralyn P. Jung, and Richard A. Mueller* 666

Isolation and Uptake Characteristics of Adenovirus Transformed Cell Revertants Resistant to the Antiproliferative Effects of Methylglyoxal Bis(guanylhydrazone) *M. T. Rodrigues, L. Palkonyay, S. Sircar, J. Fleurent, J. Dessureault, and J. M. Weber* 675

Xanthine Oxidase and Endothelium Dependent Relaxation *George Thomas and Peter W. Ramwell* 682

Isolation of Murine Pluripotent Hemopoietic Stem Cells in the G_0 Phase *Muneo Miyama-Inaba, Hajime Ogata, Junko Toki, Sho-ichi Kuma, Kikuya Sugiura, Ryoji Yasumizu, and Susumu Ikehara* 687

Increased 13-Hydroxyoctadecadienoic Acid Content in Lipopolysaccharide Stimulated Macrophages *Ulrich F. Schade, Ingrid Burmeister, and Regina Engel* 695

Nitrile Hydratase Is a Quinoprotein. A Possible New Function of Pyrroloquinoline Quinone: Activation of H_2O in an Enzymatic Hydration Reaction *Toru Nagasawa and Hideaki Yamada* 701

Human α1-Acid Glycoprotein-Exposed Macrophages Release Interleukin 1 Inhibitory Activity *P. N. Bories, M. Guenounou, J. Féger, E. Kodari, J. Agneray, and G. Durand* 710

TPA-Induction of C-*fos* mRNA during the Cell Cycle of WI-38 Human Fibroblasts *Bruno Calabretta and W. Edgar Mercer* 716

Emergence of β Adrenergic-Responsive Hepatic Glycogenolysis in Male Rats during Postmaturational Aging *Michael S. Katz, Christopher L. McNair, Tazuko K. Hymer, and Sarah R. Boland* 724

Absorption and Metabolism of Vitamin K in Swiss 3T3 Mouse Fibroblasts: A Model System for Study of Vitamin K Absorption and Metabolism *Louise M. Canfield, Terryl M. Johnson, Gail S. Martin, and J. Martyn Gunn* 731

Dissociation of Recombinant Tumor Necrosis Factor-α Studied by Gel Permeation Chromatography *Linda Owers Narhi and Tsutomu Arakawa* 740

Near Infrared Sensitivity of the Eye of the Crustacean *Mysis relicta? M. Lindström and V. B. Meyer-Rochow* 747

Microheterogeneity of the Malate Dehydrogenase from Several Sources *Carlos Domènech, Juan Abante, Francesc-Xavier Bozal, Adela Mazo, Antonio Cortés, and Jorge Bozal* 753

Functional and Biochemical Interaction of Dibutyryl Cyclic AMP with the Phosphoinositide System in Isolated Rat Parietal Cells *Andreas Pfeiffer, Gerd Sauter, and Helmut Rochlitz* 758

A Phosphooligosaccharide Mimics Insulin Action on Glycogen Phosphorylase and Pyruvate Kinase Activities in Isolated Rat Hepatocytes *José F. Alvarez, María A. Cabello, Juan E. Felíu and José M. Mato* 765

Phosphorothioated Binary Complex of Eukaryotic Initiation Factor eIF-2 and GDP Inhibits Protein Synthesis in Hemin-Supplemented Reticulocyte Lysates *Robin Hurst and Robert L. Matts* 772

Role of Superoxide in Radiation Killing of *Escherichia coli* and in Thymine Release from Thymidine *Wen Shu Lin, Fred Wong, and Robert Anderson* 778
Evidence That Bacteria Induce Translocation of Protein Kinase C Activity in Human Polymorphonuclear Leukocytes *Niels Obel Christiansen, Niels Anker Peterslund, Carsten Schade Larsen, and Viggo Esmann* 787
Characterization of a Cytochrome P-450 Deficient Mutant of *Candida albicans* *M. Bard, N. D. Lees, R. J. Barbuch, and D. Sanglard* 794
Uncoupling of Mitochondrial Oxidative Phosphorylation by Hexetidine *Gabriella D'Arcangelo, Maria Barile, Salvatore Passarella, and Ernesto Quagliariello* 801
Transient Induction of Ornithine Decarboxylase mRNA in Rat Hepatoma Cells Treated with 12-O-Tetradecanoylphorbol-13-acetate *Andrew P. Butler and Frances F. McDonald* 809
Structural Assignment of the Heme Potentials of Cytochrome C_3, Using a Specifically Modified Arginine *A. Dolla, C. Cambillau, P. Bianco, J. Haladjian, and M. Bruschi* 818
A Nuclear Factor Which Interacts with an AT-Cluster in the First Intron of Rat α_2-Macroglobulin Gene *Takashi Ito and Yoshiyuki Sakaki* 824
Molecular Cloning of the *Pseudomonas putida* Glyoxalase I Gene in *Escherichia coli* *Hae-ik Rhee, Kousaku Murata, and Akira Kimura* 831
Monoclonal Antibody C3.1 Is a Platelet-Derived Growth Factor Antagonist *Rodney S. Kawahara, Barbara B. Kennedy, and Thomas F. Deuel* 839
Limited Proteolysis of Gap Junction Protein Is Intrinsic in Mammalian Lens Fiber-Cell Plasma Membranes *Jose Alcala, David Putt, and Harry Maisel* 846
Ten to Fourteen Residue Peptides of Alzheimer's Disease Protein Are Sufficient for Amyloid Fibril Formation and Its Characteristic X-Ray Diffraction Pattern *P. D. Gorevic, E. M. Castano, R. Sarma, and B. Frangione* 854
Calcium-Dependent Phosphorylation of the Amphibian Oocyte Plasma Membrane: An Early Event in Initiating the Meiotic Divisions *Adele B. Kostellow, Eilene Jea Chien, and Gene A. Morrill* 863
Activation Mechanism of the N-*ras* Oncogene in Human Leukemias Detected by Synthetic Oligonucleotide Probes *Junji Nishida, Hisamaru Hirai, and Fumimaro Takaku* 870
An *in Vivo* Model for Study of the Angiogenic Effects of Basic Fibroblast Growth Factor *A. Hayek, F. L. Culler, G. M. Beattie, A. D. Lopez, P. Cuevas, and A. Baird* 876

Volume 147, Number 3, September 30, 1987

AUTHOR INDEX, Volume 147, Number 3, September 30, 1987 iii
In Vivo Formation of Hepoxilin A3 in the Rat *C. R. Pace-Asciak, S. P. Lee, and J. M. Martin* 881
Accumulation of a Glycine Rich Protein in Auxin-Deprived Strawberry Fruits *A. S. N. Reddy and B. W. Poovaiah* 885
Amide Proton Exchange Rates of a Bound Pepsin Inhibitor Determined by Isotope-Edited Proton NMR Experiments *Stephen W. Fesik, Jay R. Luly, Herman H. Stein, and Nwe BaMaung* 892
A Novel Role of Fatty Acid-Binding Protein as a Vehicle of Retinoids *Fumio Fukai, Toshiya Kase, Takayo Shidotani, Toshihiko Nagai, and Takashi Katayama* 899
Heat Shock Induces Peroxidase Activity in *Neurospora crassa* and Confers Tolerance toward Oxidative Stress *M. Kapoor and J. Lewis* 904
Differential Expression of Multiple Protein Kinase C Subspecies in Rat Central Nervous Tissue *Mark S. Shearman, Zvi Naor, Ushio Kikkawa, and Yasutomi Nishizuka* 911
N-Glycansulfated Fibronectin: One of the Several Sulfated Glycoproteins Synthesized by Endothelial Cells in Culture *P. Colburn, V. Buonassisi, C. P. Dietrich, and H. B. Nader* 920
Phosphorylation of the Lysosomal Enzyme Binding Receptor Protein from Monkey Brain and Evidence for a Tyrosine Kinase Activity Associated with It *K. Panneerselvam, S. Ramamoorthy, and A. S. Balasubramanian* 927
Hormonal Regulation of Serum α_1-Antitrypsin and Hepatic α_1-Antitrypsin mRNA in Rats *Sarah Jane Schwarzenberg, Harvey L. Sharp, Susan A. Berry, Robin D. Manthei, and Steven Seelig* 936

Dexamethasone Effects on Somatostatin Receptors in Pancreatic Acinar AR4-2J Cells
Nathalie Viguerie, Jean-Pierre Estève, Christiane Susini, Craig D. Logsdon, Nicole Vaysse, and André Ribet 942

HPLC-Purified [2-^{125}I]Iodomelatonin Labels Multiple Binding Sites in Hamster Brain
L. P. Niles, D. S. Pickering, and B. G. Sayer 949

Bovine Adrenal Chromaffin Granules Are a Site of Synthesis of Atrial Natriuretic Factor
H. Ong, C. Lazure, T. T. Nguyen, N. McNicoll, N. Seidah, M. Chrétien, and A. De Léan 957

Stable Transfer of a Mouse Dihydrofolate Reductase Gene into a Deficient Cell Line Using Human Adenovirus Vector *Goutam Ghosh-Choudhury and Frank L. Graham* 964

New Tester Strains of *Salmonella typhimurium* Highly Sensitive to Mutagenic Nitroarenes
Masahiko Watanabe, Takehiko Nohmi, and Motoi Ishidate, Jr. 974

Plasmid DNA Adsorbed to pH-Sensitive Liposomes Efficiently Transforms the Target Cells
Chen-Yen Wang and Leaf Huang 980

In Vivo Phosphorylation of Titin and Nebulin in Frog Skeletal Muscle
Laura L. Somerville and Kuan Wang 986

PSL, a Nuclear Cell-Cycle Associated Antigen Is Increased during Retinoic Acid-Induced Differentiation of HL-60 Cells *Jean-Philippe Barque, Sylvie Lagaye, Annie Ladoux, Véronique Della Valle, Jean Pierre Abita, and Christian-Jacques Larsen* 993

Acetylcholine Receptor Channel Properties in Rat Myotubes Exposed to Forskolin
F. Grassi, L. Monaco, and F. Eusebi 1000

Reaction Mechanism for Automodification of Poly(ADP-ribos) Synthetase
Taketoshi Taniguchi 1008

Structural Studies of Lens Fiber Junction Protein MP26 by Cyanogen Bromide Cleavage
Jose Alcala, Jonathan Lawniczak, Dave Putt, and Harry Maisel 1013

Structure of Purified Cytoplasmic Cofactor from *Methanobacterium thermoautotrophicum*
F. D. Sauer, B. A. Blackwell, and J. K. G. Kramer 1021

Lack of a Central Role for Calcium in the Induction and Release of Human Interleukin-1
Robert C. Newton 1027

Relationship between the Inhibitory Potencies of Thiorphan and Retrothiorphan Enantiomers on Thermolysin and Neutral Endopeptidase 24.11 and Their Interactions with the Thermolysin Active Site by Computer Modeling
T. Benchetrit, M. C. Fournié-Zaluski, and B. P. Roques 1034

Calcium-Independent Activation of Two Plant Leaf Calcium-Regulated Protein Kinases by Unsaturated Fatty Acids *E. Klucis an G. M. Polya* 1041

Regulation of Nerve Growth Factor Synthesis/Secretion by Catecholamine in Cultured Mouse Astroglial Cells *Shoei Furukawa, Yoshiko Furukawa, Eijiro Satoyoshi, and Kyozo Hayashi* 1048

Evidence for Imidazoline Binding Sites in Basolateral Membranes from Rabbit Kidney
Isabelle Coupry, René A. Podevin, Jean-Pierre Dausse, and Angelo Parini 1055

Immunoaffinity Purification and Characterization of Nucleotide Pyrophosphatase from Human Placenta *Toshiro Yano, Kazutoshi Horie, Ritsuko Kanamoto, Hiroshi Kitagawa, Ikuo Funakoshi, and Ikuo Yamashina* 1061

Alkylation of the Bovine Anterior Pituitary D_2-Dopamine Receptor: Inconsistency with Predictions of the Ternary Complex Model *Keith A. Wreggett* 1070

Bovine Mitochondrial Ribosomes: Effect of Cations and Heterologous Dissociation Factors on Subunit Interactions *Linda Spremulli and Betsy L. Kraus* 1077

Adenine Methylation in Zein Genes *José Antonio Pintor-Toro* 1082

Guanine Nucleotide and Pyrophosphate Activate Exogenous Phosphatidylinositol 4,5-Bisphosphate Hydrolysis in Rat Liver Plasma Membranes
Dejan Bojanic, Michael A. Wallace, Richard J. H. Wojcikiewicz, and John N. Fain 1088

Model Study on the Bioreduction of Paraquat, MPP^+, and Analogs: Evidence against a "Redox Cycling" Mechanism in MPTP Neurotoxicity *Dorothy M. Frank, Pramod. K. Arora, Jeffrey L. Blumer, and Lawrence M. Sayre* 1095

Incorporation of the Carbocyclic Analog of (*E*)-5-(2-Bromovinyl)-2′-deoxyuridine 5′-Triphosphate into a Synthetic DNA *J. Sági, E. De Clercq, A. Szemző, A. Csárnyi, T. Kovács, and L. Ötvös* 1105

Dual Role of GTP-Binding Proteins in the Control of Endothelial Prostacyclin
S. Pirotton, C. Erneux, and J. M. Boeynaems 1113

Aldolase Decreases the Dissociation-Induced Inactivation of Muscle Phosphofructokinase *Ferenc Orosz, Tania Y. Christova, and Judit Ovádi* 1121

The Generation of the Rifamycin Binding Site in the β Subunit of *Escherichia coli* RNA Polymerase through Subunit Interactions *James F. Lowder and Ronald S. Johnson* 1129

Photoaffinity Labeling and Phosphorylation of a 165-Kilodalton Peptide Associated with Dihydropyridine and Phenylalkylamine-Sensitive Calcium Channels *M. Marlene Hosey, Jacques Barhanin, Annie Schmid, Sylvie Vandaele, Judy Ptasienski, Cliff O'Callahan, Christy Cooper, and Michel Lazdunski* 1137

Three Distinct Forms of Atrial Natriuretic Factor Receptors: Kidney Tubular Epithelium Cells and Vascular Smooth Muscle Cells Contain Different Types of Receptors *Kailash N. Pandey, Tadashi Inagami, and Kunio S Misono* 1146

Biosynthesis of Reovirus-Specified Polypeptides: Molecular cDNA Cloning and Nucleotide Sequence of the Reovirus Serotype 1 Lang Strain s2 mRNA Which Encodes the Virion Core Polypeptide σ_2 *Cyril X. George, Alison Crowe, Susan M. Munemitsu, Jonathan A. Atwater, and Charles E. Samuel* 1153

Effect of Cisapride on the Concentrations of β-Endorphinlike Immunoreactivity and Substance P-like Immunoreactivity in the Rat Gastrointestinal Tract *Akira Tari, Koji Sumii, Masaharu Yoshihara, Hiroaki Ohgoshi, Hitoshi Teshima, Issaku Fukuhara, Ken Haruma, Goro Kajiyama, Ko Tanaka, Akima Miyoshi, and Yukitaka Miyachi* 1162

Alterations in Tissue Mg^{2+}, Na^+, and Spinal Cord Edema following Impact Trauma in Rats *M. Lemke, P. Demediuk, T. K. McIntosh, R. Vink, and A. I. Faden* 1170

Human Urokinase-Type Plasminogen Activator Stimulates Chemotaxis of Human Neutrophils *Paul W. Gudewicz and Nisan Gilboa* 1176

Construction of a cDNA Clone Containing the Entire Coding Region of the Human Liver-Type Phosphofructokinase *D. Levanon, E. Danciger, N. Dafni, and Y. Groner* 1182

Glucocorticoid Receptors Are Associated with Particles Containing DNA and RNA *in Vivo* *Gian Paolo Rossini* 1188

Activation of the Ha-*ras* Gene in C3H 10T1/2 Cells Transformed by Exposure to *N*-Methyl-*N'*-nitro-*N*-nitrosoguanidine *G. J. Smith and J. W. Grisham* 1194

Glutathione Peroxidase in Yeast: Presence of the Enzyme and Induction by Oxidative Conditions *Francesca Galiazzo, Alma Schiesser, and Guiseppe Rotilio* 1200

The Specificity of the Human IGF-2 Receptor *Michael Tally, Gösta Enberg, Choh Hao Li, and Kerstin Hall* 1206

Platelet Activating Factor-Mediated Leukotriene Biosynthesis in Rat Lungs: Effect of Prostaglandins E_1 and $F_{1\alpha}$ *V. Di Marzo, J. R. Tippins, and H. R. Morris* 1213

The Membrane-Anchor of *Paramecium* Temperature-Specific Surface Antigens Is a Glycosylinositol Phospholipid *Yvonne Capdeville, M. Lucia Cardoso de Almeida, and Christiane Deregnaucourt* 1219

Studies of the Penetration of the Blood–Brain Barrier by Atrial Natriuretic Factor *Ellis R. Levin, Harrison J. L. Frank, Michael A. Weber, Mohammad Ismail, and Steven Mills* 1226

Role of Kinase C in the Insulinlike Effects of Human Growth Hormone in Rat Adipocytes *Jean Smal and Pierre De Meyts* 1232

Inhibition of Nuclear Binding of Triiodothyronine by Antimycin A in Cultured Human Fibroblasts *Luis Valdivielso and Juan Bernal* 1241

Partial Purification of Cytochrome P-450 from Rat Brain and Demonstration of Estradiol Hydroxylation *Osamu Sugita, Shinichi Miyairi, Shigeru Sassa, and Attallah Kappas* 1245

Phosphorylation of Phosphatidylinositol Associated with the Nicotinic Acetylcholine Receptor of *Torpedo californica* *Reinhold Kiehl, Magdolna Varsányi, and Eberhard Neumann* 1251

The Aromatase Active Site: The C-6 "Front" Side of the Androgen Molecule Is Required for Binding *Liat Tan and Pierre Rousseau* 1259

ADP Increases the Affinity for Cytochrome *c* by Interaction with the Matrix Side of Bovine Heart Cytochrome *c* Oxidase *Fritz-Joachim Hüther and Bernhard Kadenbach* 1268

Evidence for the Involvement of Hydroxyl Radicals in Nickel Mediated Enhancement of Lipid Peroxidation: Implications for Nickel Carcinogenesis *Mohammad Athar, Syed K. Hasan, and Ramesh C. Srivastava* 1276

PGE_2 Causes a Coordinate Decrease in the Steady-State Levels of Fibronectin and Types I and III Procollagen mRNAs in Normal Human Dermal Fibroblasts
John Varga, Arturo Diaz-Perez, Joel Rosenbloom, and Sergio A. Jimenez 1282

Electrochemical Study of the Electron Exchange between Cytochrome c_3 and Hydrogenase from *Desulfovibrio desulfuricans* Norway *Jean Haladjian, Pierre Bianco, Françoise Guerlesquin, and Mireille Bruschi* 1289

Reduction and Catalytic Properties of Cytochrome *P*-450 LM2 in Reconstituted System Containing Monomeric Carriers *I. P. Kanaeva, E. D. Skotselyas, I. F. Turkina, E. V. Petrochenko, D. R. Davydov, S. K. Kondrashin, Ch. S. Dzuzenova, G. I. Bachmanova, and A. I. Archakov* 1295

ERRATA

Volume 140, Number 3, November 14, 1986: Margit Balázs, János Matkó, János Szöllösi, László Mátyus, Mack J. Fulwyler, and Sándor Damjanovich, "Accessibility of Cell Surface Thiols in Human Lymphocytes Is Altered by Ionophores or OKT-3 Antibody," pp. 999-1006 1300

Volume 143, Number 2, March 13, 1987: Michael T. Makler, "*P. falciparum* Invasion of Human Red Cells and Cytoadherence to Endothelial Cells Is Dependent upon a Parasite Produced Glycosidase," pp. 461-466 1301

Volume 145, Number 1, May 29, 1987: Kamal F. Badr, Charles N. Serhan, K. C. Nicolaou, and Bengt Samuelsson, "The Action of Lipoxin-A on Glomerular Microcirculatory Dynamics in the Rat," pp. 408-414 1300

Volume 145, Number 3, June 30, 1987: Jesús Sánchez-Yagüe, José A. Cabezas, and Marcial Llanillo, "Rearrangement of Aminophospholipids in Bilayers from Sheep Platelet Plasma Membranes and Platelet Liposomes by Increasing Their Cholesterol Levels," pp. 1362-1367

Author Index for Volume 147 1303

The Subject Index for Volume 147 will appear as part of a cumulative index for the year 1987.